

INTERNAL USE ONLY

January 1966

MEMORANDUM FOR THE RECORD

SUBJECT: NSA. Liaison

Declass Review by
NGA.

The purpose of this visit was to obtain knowledge of the state-of-the-art of viewing and/or converting various video tape formats in response to NPIC's Video Tape / Hard Copy requirements. Re. letter NPIC / CSO-625-65 of 6 December 1965.

NSA. is neither adapted to nor particularly interested in Video Tape, per se. Consequently, equipment was modified for other purposes and was not suited for the best presentation of T.V. imagery.

[redacted] of NSA. demonstrated an RCA - TR - 12 unit [redacted]

which is capable of playing any Video Tape, foreign or domestic, that is recorded with a transverse system. This equipment is initially aligned with a standard tape. Variations of the tape to be read to the standard ~~adjustments~~ are noted, then adjustments are made for the best read of that particular tape. ~~It was not~~ However, this ~~type~~ equipment was not capable of ~~presenting~~ a stop motion, or single frame presentation, which would

be required for studying or producing hard copy for a series of events or a particular single frame. A standard T.V. program was recorded on the RCA - TR-22. The Video Taped imagery was compared for quality with the original broadcast as it ~~it~~ was occurring at that time. A slight but definite image degradation was readily apparent. [] indicated that

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most of the jitter, fuzziness, etc. responsible for most of the image degradation could ~~be~~ be overcome by re-inserting the sync signal in the play back equipment.

* A VIDEODISC T.V. DISC RECORDER

[] was recommended as the best solution to a continuous frame display requirement. This unit will allow the selection of a particular series of frames or of a particular single frame for an unlimited replay with practically no image degradation due to wear. This unit would be applicable to both transverse and helical scan Video Tapes.

An [] VR-660 (a helical scan device) which had been modified to play 625 scan line / 50 cycle frame rate TV was shown but was not in operational condition and could not be demonstrated.

~~Indications~~

Indications were that the modification was not very successful. ~~The~~

The following points concerning helical Video Tape recorders should be considered and kept in mind.

(a) There are no set standards for helical scan Video Tape recording, ergo, recordings made on one manufacturer's equipment ~~are~~ not compatible with another manufacturer's. Due to wear and individual manufacturing variations, from a quality point of view, it would be preferable to view helical scan Video Tapes on the same piece of equipment that ~~made~~ the recording.

(b) Separate tape decks, i.e., recorders, are required for various frame rate T.V. systems. A 50 cps frame rate recording would have to be recorded and played on a mechanism that is not compatible with 60 cps frame rate recording.

(c) Although helical scan Video Tape equipment have stop-motion capabilities, the quality of the image in the monitor is drastically reduced during a stop motion mode. This is primarily caused by the fact that the magnetic

It is very difficult to stop the play back exactly on the frame. Part of the preceding or following frame are usually obtained and considerable jockeying is required to stop exactly on the frame.

Tape is no longer in motion. The change from a dynamic to a static state causes the read-head to be slightly misaligned, not so much as to preclude sensing, but enough to degrade the image on the monitor considerably. Additionally, the magnetic tape is physically damaged by the continuous reading and re-reading of a single frame. In actuality, the stop-frame feature of helical recorders is a very limited capability.

25X A special purpose unit built by [redacted] for processing a digitized TV signal was seen and discussed. This is a fairly high resolution TV system but is extremely slow due to the digitized nature of the input. The equipment produces a conventional silver transparency ~~hard~~ hard copy (resolution process) using a unique cylindrical TV screen for imprinting the ~~image~~ imagery. Since the imagery presented is a series of still photos rather than images in motion, a continuous scan technique is used rather than the standard commercial interlaced scan system.

Conclusions

In reference to NPIC's requirements, i.e., to be capable of receiving any Video Tape that the center might receive, to be capable of extraction of high quality stills from these inputs, it appears at the present time that various involved and complicated equipment will be required.

The canvassing of the Commercial market and of other governmental agencies will be continued until more definite ~~recommendations~~^{ing} recommendations can be made.

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